

## NEW HAMPSHIRE STATE BUILDING CODE REVIEW BOARD

*Minutes of Hearing - April 11, 2008*

***CORRECTED***

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### **Attendance:**

Senator Robert Clegg, Chairman, designee for Dept of Safety  
Thomas Malley, Bureau of Electrical Safety and Licensing, licensed master electrician  
Jerry Tepe, Board of Architects, licensed architect  
Michael Santa, CBO, Governor's Commission on Disability, Architectural barrier/free design  
John Tuttle, NH Home Builders Association, Architectural designer - residential  
Mark Weissflog, NH Electrical Contractors Business Assoc., licensed master electrician  
Robert Ives, NH Plumbers and Mechanical Contractors Association, mechanical contractor  
James Petersen, PE, Board of Engineers, licensed mechanical engineer  
Jon Osgood, Public Utilities Commission, state energy conservation code office  
Wayne A. Richardson, NH Building Officials Association, municipal building official  
Laura A. Black, PE - Board of Engineers, licensed electrical engineer

### **Excused:**

Tedd Evans, Board for Licensing and Regulation of Plumbers, licensed master plumber  
Michael Hoisington, Fire Marshal, NH Association of Fire Chiefs, active fire prevention officer  
Thomas Lambert, Chief, NH Association of Fire Chiefs, Municipal Fire  
Joel Fisher, Board of Engineers, licensed structural engineer

### **Absent:**

VACANT, NH Municipal Association  
Fred Baybutt, Associated General Contractors, building contractor - non-residential bldgs.

### **Guests:**

Daniel J. Levasseur - Levasseur Electric Company Inc.  
Don Mendzela - Gerard A. LaFlamme, Inc.  
Steven Rancourt - Rancourt Enterprises, Inc. (Electrical Contractors Business Association)  
Dan Boisvert - D A Boisvert Electric  
James Shaw - James Shaw Electrical  
Gil Moniz - NEMA  
Mark Hilbert - State Fire Marshal's office  
Robert Simon - Hubbell, Inc (NEMA)  
Henry Szumiewsz - Longchamps Electric, Inc. (Electricians Board)

Acting Chair Tepe declared this Board meeting open at 10:10 with a quorum of Board members present. Notification of the meeting was published on-line on the Safety website, and notices were

placed at the Department of Safety, the Fire Academy and 2 locations at the State House. Each Board member was also sent the Notice of Meeting.

Senator Clegg joined the meeting at 10:11 and assumed role as Chairman.

## **PUBLIC HEARING**

### ***Exhibit 43 - Proposed amendment to the 2008 National Electrical Code (NFPA 70) - Section 210.12 (B):***

Comments: Steven Rancourt - Pelham New Hampshire, electrical contractor, and is President of the Electrical Contractors Business Association and is here also as a consumer. The Association is asking that this Board delay the adoption of the Code Amendments until 2011 while implementing the new Arc Fault protection that is out in the market. Recently as part of the 2005 Code mandate that they come up with a combination Arc Fault - which is a series of parallel detection. It senses an arc across two wires. As with any new product there are a lot of issues when a new product first comes out. They changed their product from the existing one to the combination one - and they want us to implement it expand the use of it. There are going to be problems that come up with these new items. We feel that we should be able to use these new items within the existing Code as it is now. If you have an extension of an existing circuit - that circuit has to be Arc Fault.

Question: Tom Malley asked about the cost - in your professional opinion if a homeowner contacts a contractor for a price quote and gets one and it is way out of the ball park in what they had envisioned, do you think these homeowners will start doing things 'underground' in order to get what they want. Steve answered yes it probably will. We should not to rush to implement new technology while expanding it at the same time. Jerry Tepe asked if they wanted us to go back to the 2005 Code. Steve answered the 2005 Code states that by 2008 there should be combination Arc Faults - intention is to have them remain in the same locations with the new technology. False tripping instances are hard to pinpoint. It's not because the electricians wired it wrong - the problem is usually with the breaker. Many people went out and purchased an Arc Fault tester. John Tuttle asked how many call backs does he see for Arc Faults that are already in bedrooms. Steve reported that typically, in the beginning a lot - but as time goes on and they address them and the problem goes away. Mark Weissflog asked if the combination devices are being sold. Steve said they are being sold and installed. The State of Idaho omitted this particular section from their Codes because of this very issue. Tom Malley asked how long they would like delay the adoption. Steve said the 3 yr cycle would be perfect. They need to get data back. Chairman Clegg said because the defective ones are thrown out instead of being sent back to the manufacturer (cost saving factor) so there is no way of telling how many are being thrown out because they are not performing.

Daniel Levasseur out of Manchester had information for the Board and feels that the electricians are trapped now with the Arc Faults. The manufacturers self police themselves. His company does not go two weeks without getting a call about them being defective. Chairman Clegg stated that if he heard correctly, they do not have a problem with Arc Fault itself. The problem is that there is not a ready supply of the pieces to install ???. Daniel is not comfortable with those being installed in bedrooms now - because of the call backs etc. There is no labor allowance from Arc Fault to replace the breakers. Because there is nothing developed now to test these circuits, he feels that the product is not ready to be used in the whole house.

James Shaw an electrical contractor in NH, in opposition to the Arc Fault. For the same reasons as given in prior testimony. Replacement has to be at the electrician's expense. These need to be tested before making them mandatory. Then come back and see if the problem(s) have been corrected. For Safety reasons . . . he would not put them in his house. Let's wait till 2011. Wayne Richardson asked that when he returned and replaced the units did the problem solve itself? James stated yes it did. Jon Osgood asked when you replace these Arc Faults does the vacuum cleaner tripped the device every time? James said it's not every washer, every vacuum all the time, but how many times do you need to go back and replace these? He has gone back to one house 3 times to replace one.

Gil Moniz representing the National Electrical Manufacturers Association. He wanted to go back to the February meeting because some of the information out there is misinformation and it's being carried forward as fact. The 2005 Code has the provision that says the combination type shall become effective January 1, 2008. When the circuit breakers trip when using a vacuum cleaner from a certain manufacturer - the manufacturer of the vacuum has identified a problem with their product. You can not use the testers you need to use the test button. The Code is not retroactive. The Consumer Product Safety Commission initiated a study to look at the number of fires we have in homes. Regarding false tripping . . . they have found that a lot of the nuisance tripping problems are grounding problems. The lifeline of an electrical circuit - the safety net - is the over-current protective device. No one tests the safety device to see if it will trip at 50 amps, 20 amps, etc. There have been recalls were not for technology problems - they were for quality control problems. AFCI may employ within their product a GFCI - a ground fault tester - but it's not the same product. Mike Santa asked if there was 'something out there' that will test for circuits. Gil responded that there was nothing. Mike said if you are trying to find out what is wrong - and you can't test to see if it's the equipment or the circuit breaker - isn't there a real issue here that should be addressed by the manufacturer of the product. Gil replied yes. Wayne Richardson asked if he was aware that some of the manufacturers of the combination breakers are putting trouble shooting indicators. Gil said yes. The indicator will tell you the type of fault - but he is not sure how that would be tracked. Chairman Clegg asked if we are to mandate the use of a product - how does the legislature make the manufacturers responsible for professional equipment and poor quality control? Gil will provide the layout of the program.

(inaudible ) and also an electrical contractor. Wanted to comment on the report given that has the 14, 500 house fires - there is no data or study to support that an Arc-Fault device would have been required.

Chairman Clegg asked if anybody else wanted to speak.

Mark Hilbert, Chief Electrical Inspector for the State of New Hampshire. Provided written testimony from himself on behalf of the State Fire Marshal. Speaking on behalf of the Fire Marshal - they want to be on record that they are opposed to any amendment to Exhibit 43. He strongly opposes that. To clarify, Mike asked earlier if there was a test available - and the answer is yes - it's on the device. If there is a problem indicated - the test device -operates the circuit breaker - then the circuit breaker is working properly. The ones intended to test the devices are on the devices themselves. These devices have been around since 1999. The proposed amendment seeks to go back to the 2005 plane - and that will not take away the combination. The combination was not part of the 2008 NEC - it was part of the 2005 NEC - it had an effective date of 2008.

They are opposed to the amendment. John Tuttle asked if the State FMO is strongly against amending this section of the Code - do you have data that supports the number of fires in the State that have been contributed to Arc Fault? The answer was not that he was aware of - he does not know what the Fire Marshal used to base his testimony on. As an electrical inspector and electrician most cases that he has been made aware of, it turns out to be a wiring problem within the dwelling unit and not the device that's the problem. Chairman Clegg asked about smoke detectors - are we running the risk because of poor quality control - that somebody's smoke detector is going to go down? Mark replied that he hopes not. AFCI protection is required in bedroom smoke detectors. Mike Santa asked when this technology was proposed back in 1999 - what was the evidence that was brought forward that this was an issue that was causing fires. There had to be documentation. Where can it be found? Mark replied it's an accumulation of information and was introduced by the Consumer Product Safety Commission. They looked at the number of fires that were deemed electrical fires in the country - and they said lets try to find the technology to reduce these fires. What this technology is directed at is the low energy arc that are not supplying enough substantial fault current to trip a standard over current device at 15 amps. It was an overall concern to try and reduce the number of fires. From 1999 to today has there been a study showing a reduction in electrical fires in homes or wherever? Mark said yes he believes so - it has been the discussion at some of the meetings he has attended- and they have had a reduction in the number of fires - although there is no formal tally yet to prove it. He thinks you will find that they are the failure of the wiring system as opposed to the device, more often than not. Laura Black asked how the State is interpreting that branch circuits would be required to be changed or not. Mark replied if you would have to replace a receptacle outlet for example to protect the AFCI circuit and that would be no. It's only when you install new branch circuit wiring that you would are required to put in AFCI protection. If you install new wiring in one room then yes you would have to protect that. Not the whole room - just the part you are re-doing. When you upgrade a service - there is no requirement - from 100 to 200 there is no requirement. Jerry Tepe said that bathrooms and kitchens are exempt from this requirement. Mark said that is correct.

Chairman Clegg asked if there were any more comments/testimony on this Exhibit. There being none - declared this Public Hearing CLOSED on Exhibit 43.

***Exhibit 44 - Comments on the adoption of proposed amendment to 2008 National Electrical Code (NFPA 70 - Section 680.26 (7) (C). :***

Don Mendzela a member of the ECBA - they want to remove the code language requiring the grounding of pool water. More and more pools are becoming non-metallic. In the 30 years that he has been an electrician they have not come up with a standard on how to ground a pool. The State is big on UL listing. If you put a ground wire to a ladder or light fixture - is that UL listed? Come next code cycle they might come up with a UL device that would acknowledge (inaudible) pool water.

(unidentified) - this is an issue dealing with education knowing the requirement. The requirement calls for a 9 inch square surface contact of a non-corrosive material, a brass nipple 3 inches by an inch and a quarter will give you the 9 square inches - in line between the shut off and the pool add a bonding clamp to that and it will take care of that requirement.

Steven Rancourt. Most of the problems we are going to see are going to be above ground pools. Everything is plastic/pvc and now they want a ground to the water. If they come up with a method

- all they are asking is to wait for a proposal. Pool manufacturers have not gotten wind of this and customers do not know how they are going to do this. Just postpone it. Jerry asked if this problem would only occur if there were metal parts on the pool. (inaudible)

Mark Hilbert. This requirement is the result of testing done by one of the Universities that determined that there was a voltage gradient between the pool water and the perimeter surfaces around the pool when there was no contact with the water that was actually bonded with something else the pool system. It's not actually grounding it - its actually tying all the metal pieces together it what its requiring it to do. The only time this is going to be required to be done is when there is no metal in contact with the water or there is a non-conductive pool wall. Mike Santa asked about the inflatable pools - have any idea how you would bond that type? Mark suggested the ladder it looks like a tripod and sits over the pool - any clamp on meets the requirement. Mark Weissflog - said that most of these kinds of pools come through with non-metallic ladders. How effective would that type of bonding be? Mark said it would require something to be in contact with the water. The State Fire Marshal's office is not in favor of adopting this amendment. If it's a storable pool requirement - it's not required. Wayne Richardson what do you bond to in a fiber glass shell in-ground pool with a motor with no bonding on it. Mark said you need something in contact with the water - something in the perimeter surface. Laura Black asked that until there is a UL listed device will the State accept something that is installed? Yes, because the connection device that we use to attach to that clamp is a vista clamp and that is what is required.

There being no further discussion, Chairman Clegg CLOSED the Public Hearing on Exhibit 44.

***Exhibit 45 - Comments on the adoption of proposed amendment to the 2008 National Electrical Code (NFPA 70) - Section 406.11:***

Chairman Clegg opened the Public Hearing on Exhibit 45.

(unidentified speaker) - Had statistics where people were becoming hurt in the US. 300,000 residents and about 6% had children in the age category that would be injured by sticking something into a receptacle. Less than one millionth of one percent of people were injured by sticking something into a receptacle - and the fatalities are way lower. To say that we are going to save a lot of lives by installing these tamper proof receptacles is false. It's the right of NH not to choose to put something into 94% of the houses.

Bob Simon. As a member of the NEMO working group that conceptualized and proposed the tamper resistance as a means to protect children - they think it's important opportunity to improve the quality of our devices. Their group looked into data from the CPSC that said there are approx. 24,000 over 10 years that were injured by electrical incidences with electrical outlets. They thought it was kind of strange that they were getting shocked and not getting burned - and what they found out was the kids were putting metal things into the outlets making contact with the outlet making it red hot and therefore burns. UL has pulled their listing from the wall plates that go over the receptacles because there was an issue with the depth of the plate and it would cause teasing of the electrical contact. The issue there was that they wanted to make sure there was full engagement of the plug into the receptacle and there was no teasing. The other issue was the caps that fit into the outlets . . . they do not always get put back in when removed to do something such as vacuum. And another issue was that kids were picking them up off the floors and choking on



them (although he could not verify that statement). He would urge the Board to maintain the tamper resistant devices - they are well worth the few extra cents - to keep kids from getting some serious burns because you can not watch a child 24/7. Jerry Tepe asked if that presentation said 12,000 and now you are telling us 24,000. Bob explained that the 24,000 was the total number of kids and the 12,000 was the pocket of 3-6 years olds targeted. John Tuttle asked about the page that had percentages - saying it looks like only 3% had the burns. Bob answered that the total was 24,000 - those that had to be admitted were in the 3-5% range.

(unidentified). At the January meeting he researched some quotes from distributors. The Chair asked him to read them into the record. He reported Hayes Electric was 99 cents. Concord Electric \$1.20.

Steve Rancourt. He passed around a sample of what is being discussed. It has regular receptacle on the left and a tamper-proof one on the right. He also put in the top is one of the caps plugged into the receptacle. Wants everyone to take it out and put it back into the tamper proof one. These are the new products that we are talking about here. Prior to mandating that all these devices be installed - each dwelling owner should have the ability to decide what protection they desire. He hopes that each Board member will take everything into consideration when they make their decisions. Reports can be misleading. He does not believe that there is data to support those reports. We should not use estimates or guesses here. Let's get actual facts before jumping the gun. This report is 7 - 17 yrs old. The products we use have gotten much better. Let's get up to date data and numbers. Bob Ives asked if the electrical code was a minimum standard. Steve answered correct. People would still be able to order the outlets above and beyond what the minimum standard was.

Mark (Hilbert) . The State Fire Marshal opposes this amendment. They disagree that a device you put into a house will give you the same degree of protection for a child that you would get with a tamper resistant receptacle. Is it acceptable to give a child a 1<sup>st</sup> degree burn? No. We have an obligation to reduce the amount of injuries to a child.

Chairman Clegg asked if there were anyone else who wished to speak on this Exhibit. Seeing none - closed the **PUBLIC HEARING** on **EXHIBIT 45**.

***Exhibit 46 - Comments on the adoption of proposed amendment to the 2008 National Electrical Code (NFPA 70) - Section 406.8:***

Chairman Clegg opened the Public Hearing on Exhibit 46.

(inaudible). The problem with the receptacles is not just exposure to wetness/dampness - but its exposure to UV also - the sunlight - and the deteriorating effect it has on the receptacles. The bubble covers do not provide any UV protection in those receptacles. The other issue is the hardware used to secure the receptacles. It's a one time installation when you install that type of receptacle because when you come back, you can-not remove that screw - or it's extremely difficult.

James Shaw. He has 10 outdoor receptacles on his own house. He has never had any major problem with them over the years. He is opposed to something that is not needed.

Bob Simon. Through a study done through NEMA a lot of the issues were down south. What they found was a lot of the terminals rust, you get corrosion, you get bug infestation, and you get situations where receptacles see a lot of heat - and as a result the face plate breaks. That causes a hazardous situation. The concept was to create a device that has UV stabilization and no ferrous metals in it so you do not have rust - and you don't have the face breaking. It is more durable - it can be outside and perform and not create a hazard.

Steven Rancourt. He thanks the members of the Board for volunteering it's a first time the organization of electricians and consumers have had a neutral forum to discuss these issues. This ROP when it went in - it was based on a joint field study. Your GFI receptacles are almost double the cost. This weather resistant material is not going to stop these from being damaged or having problems. He asks that the data be produced for the Board. More than likely the report was due to lack of proper testing procedures as well as a general lack of use.

Mark Hilbert . The State Fire Marshal's office is against this proposed amendment. Residentially speaking you are talking about 2 receptacles on the average on the outside of a dwelling. Wayne Richardson asked if these would not be UL listed. Mark answered yes - they will be required to be weather resistant.

There being no further discussion on **Exhibit 46** - Chairman Clegg **CLOSED** the Public Hearing.

***Exhibit 47 - Comments on the adoption of proposed amendment to the 2008 National Electrical Code (NFPA 70) - Section 210.5 (C):***

Chairman Clegg opened the Public Hearing on Exhibit 47.

Henry Szumiewsz. This proposed amendment deals with an area of conductor identification. This is seen mostly on larger buildings. The current Code requires electricians to identify the Phase conductors. Normally electricians use color coding anyway. The have low voltage colors black red and blue and high voltage colors it's been in use for years. The Code now wants electricians to identify each of the colors if we use that method, phase A, B and C. They want black phase A, red phase B, and red phase C. It looks nice. The problem is other areas of the Code this will effect. The have to put a sticker on the panel to identify how their identification is set up. It also has to be done down the stream, termination points, junction boxes, light fixtures, etc. The issue is that if you say that BLACK is phase A and all my receptacles are using that phase - they all have to be BLACK. We have to do a load balancing. To do that - the electrician will measure the amps on the branches and see which ones are higher than others. All have to be changed to the color code. If you take the words "phase or align" out - this will correct itself. Mark Weissflog asked if there was also an issue with re-identifying cable assemblies that have predetermined colors that come with them? Henry answered that you are allowed by Code to re-identify if you are using that method. Chairman Clegg said we have to be careful here and not have energy waste.

(unidentified). If you start off in a panel using black red and blue or brown orange and yellow, then you have to continue that color code all the way down from panel to device. This does not need to be changed. It should remain status quo.

Mark Hilbert. The State Fire Marshal's office is in favor of this amendment. If you have a building that has different volts coming into the building, the requirement is there so you have to identify the different systems. So when you looked at it you would know what kind of system it was. The requirements for systems were listed as well - by coloring, by tagging, by numbering etc. This change is related to the identification of conductors rather than the cables themselves. This is primarily a commercial/industrial Rule. We do not feel it would be compromising safety if it were passed.

The Chair asked if there was any further discussion on Exhibit 47 - seeing none **CLOSED** the **Public Hearing** on this exhibit.

For the next 14 days - the Chair will accept any written testimony on any of these Exhibits. We will vote on these Exhibits at the next meeting.

John Tuttle passed out the Home Builders letter on their opinion on the Exhibits.

Chairman Clegg **CLOSED** the **PUBLIC HEARING**.

***Adoption of meeting minutes of March 14, 2009.***

Tom Malley **MOVED** to accept the minutes as written. Mark Weissflog **SECONDED**. Voice vote was taken and was unanimous in favor.

**OLD BUSINESS**

**NEW / OTHER BUSINESS**

Both Old Business and New/Other Business will be discussed at next months meeting.

Chairman Clegg accepted a **MOTION** to Adjourn. Motion was duly **SECONDED** - and voice vote taken was unanimous. Declared **ADJOURNED** by the Chair.